

Internal Cabling Guide for the HP Smart Array 5300 Series Controller on an HP Server rx2600



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Part Number A9827-96003

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Introduction

This document describes how to cable an HP Smart Array 5300 controller card, and an Ultra160 RAID card (HP product number A9827A/A9828A) to the internal hard drives of an HP Server rx2600.

NOTE: These instructions do not apply if you are connecting the HP Smart Array 5300 controller card to an external mass storage box. Proceed to the *HP Smart Array 5300 Controller User Guide* that shipped with the HP Smart Array 5300 controller card.

The Smart Array 5300 Series controller cards are comprised of two models: the 5302 and the 5304. Model 5302 has two Wide Ultra160 SCSI channels and 128 MB of cache and model 5304 has four Wide Ultra160 SCSI channels and 256 MB of cache.

| Product Number | Description |
|----------------|--------------|
| A9825A | SA5302/128MB |
| A9826A | SA5304/256MB |

Before you begin, you will need:

- The two cables included in this kit:
 - Cable p/n A7231-63024 for single channel configuration
 - Cable p/n A7231-63025 for dual channel configuration
- T-15 Torx driver
- 3/16-inch hex driver
- HP Smart Array 5300 controller card (see Figures 1 and 2)

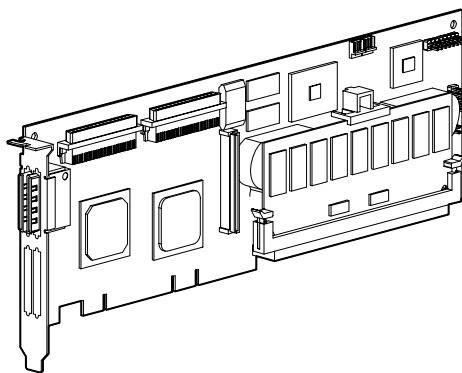


Figure 1: The Smart Array 5302 controller card

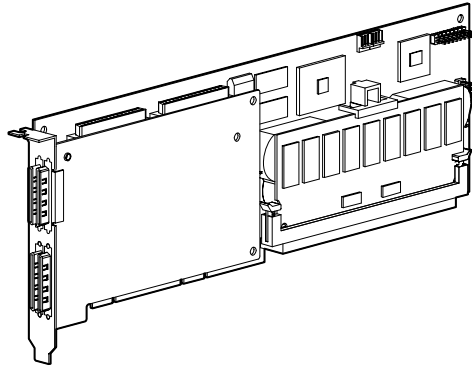


Figure 2: The Smart Array 5304 controller card

NOTE: If an HP Server rx2600 is ordered from the factory along with an internal RAID option (with the HP Smart Array 5300 controller card and an extension cable A7231-63024 preinstalled), this extension cable will connect the hot-plug drives 0 and 1 to PORT 1 of the HP Smart Array 5300 controller card installed in PCI slot 3. The additional cable A7231-63025 will be placed in the server top tray. The Internal hot plug drive 2 will still be connected to the integrated SCSI controller.

PORT 2 of the HP Smart Array 5300 controller card will still be available to connect the external StorageWorks mass storage or internal hot plug drive 2. If the internal hot-plug drive 2 is required for RAID, you will need to install cable A7231-63025 as described in the "Recabling for RAID" section later in this document.

If you opt to use both ports of the Smart Array 5302 controller card for your internal drives, you will need to purchase an additional HP Smart Array controller if you want external RAID mass storage.

Installing the HP Smart Array 5300 Controller Card

1. If the server is running, shut down the OS, power off the server, and unplug the power cord.
2. Remove the metal system cover as described in the server's operation and maintenance guide.
3. Lift up the PCI cage release lever along with the back edge of the PCI cage and lift the PCI cage out of the system. See Figure 3.

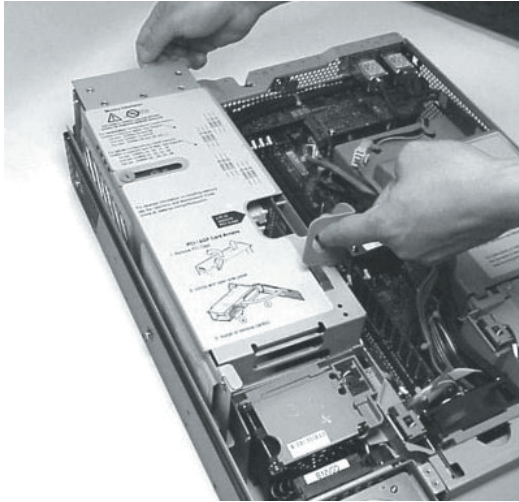


Figure 3: Removing the PCI cage

4. Grasp the PCI cage cover and slide it away from the bulkhead end of the PCI cage. Lift the cover off the PCI cage as shown in Figure 4.

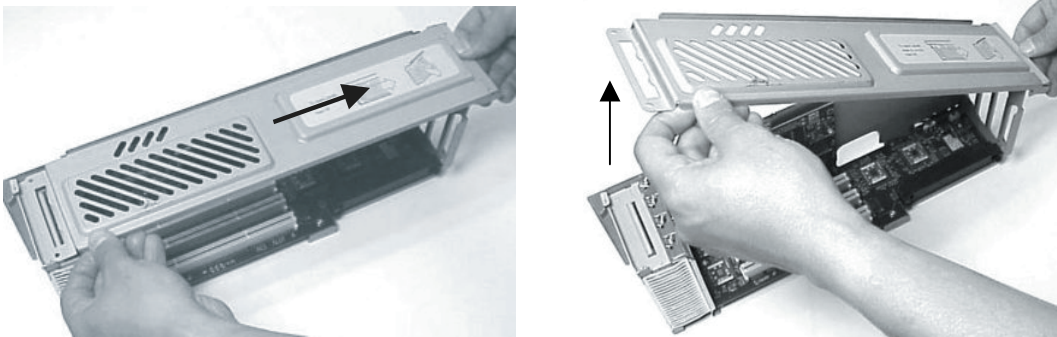


Figure 4: Removing the PCI cage board cover

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5. Install the HP Smart Array 5300 controller card in PCI Slot 3 (see Figure 5). This is required when connecting the HP Smart Array 5300 controller card to the internal hard disk drives.

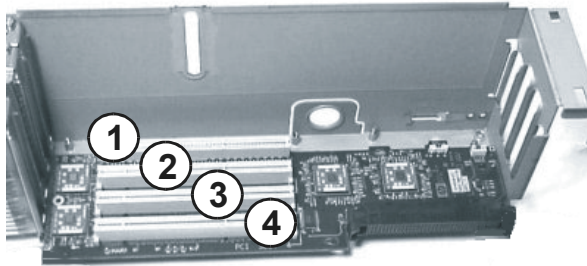


Figure 5: PCI card order

6. When the installation is complete, proceed to the next section for cabling instructions.

NOTE: Do not slide the PCI cage cover back on the system at this point. This will be done later.

Cabling the HP Smart Array 5300 Controller Card to the Server

Default SCSI Cabling

If the HP Smart Array 5300 controller card is not already installed in your server from the factory, then the internal hard drives for the rx2600 are connected to the integrated SCSI controller with two internal SCSI cables attached to the system board and the hard drive backplane.

- One internal SCSI cable (p/n A7231-63017) is connected to the CH A connector of the hard drive backplane. This connector is cabled to physical drives 0 and 1 (see Figures 6 and 7).
- The other SCSI cable (p/n A7231-63018) is connected to the CH B connector of the hard drive backplane. This connector is cabled to physical drive 2 (see Figures 6 and 7).

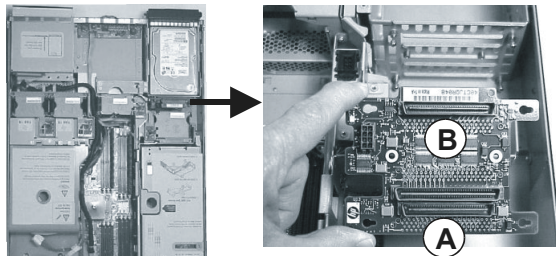


Figure 6: Default cabling for internal hard drives



Figure 7: Physical drive location (front of server)

Recabling for RAID

Your server's internal hard disk drives may be set up for single or dual channel RAID support. To use RAID with your server's internal hard disk drives, you will need to disconnect the internal SCSI cable(s) from their controller and the hard disk drive backplane (described below) and remove them from the system. You will then connect the HP Smart Array 5300 controller card to the hard disk drive backplane using either the single channel cable or the dual channel cable that is supplied. Follow the instructions below to accomplish these tasks.

1. To get access to the hard drive backplane and the internal SCSI cables, you must first remove fans 2 and 3. Refer to Figure 8 for their location, then proceed to step 2 for removal instructions.

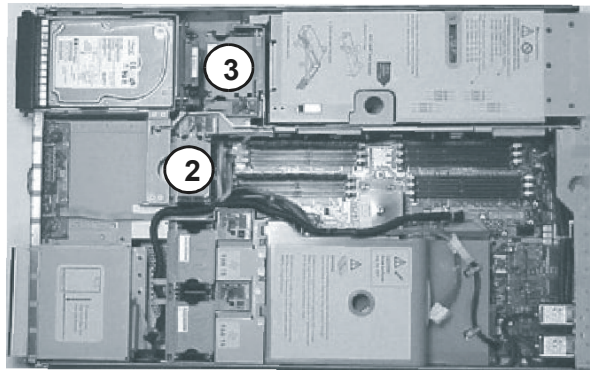


Figure 8: Location of fans 2 and 3

2. To remove the fans, grasp the fan module that needs to be removed with your index finger and thumb and lift it out of its fan slot. Note that each of the fan modules has indentations for grasping them with your index finger and thumb. See Figure 9.

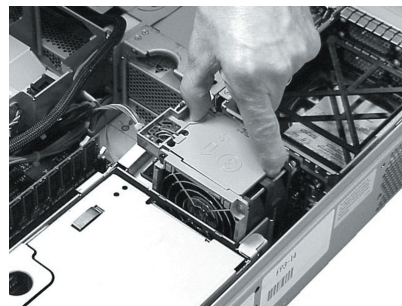
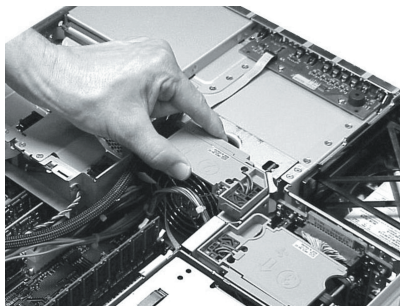


Figure 9: Removing fans 2 and 3

3. To remove a SCSI cable, lift up on the fan power bridge as shown in Figure 10.

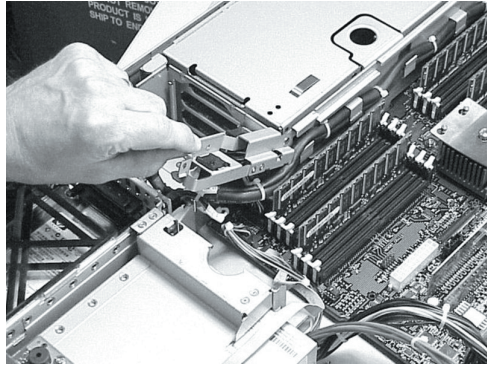


Figure 10: Lifting the fan power bridge

4. Unplug one or both of the SCSI cables connected to the hard drive backplane (see Figure 6), depending upon whether you want to use one or both channels of the HP Smart Array 5300 controller card.

Single Channel: Unplug backplane SCSI cable Channel A (bottom) connector.

Dual Channel: Unplug backplane SCSI cable Channel A (bottom) and SCSI cable Channel B (top) connectors.

5. Remove any unused internal SCSI cables from the server, since these cables are not terminated and may not remain connected to the system board. Additionally, enough room is not available for the cables to be left unplugged in the server.

To remove unused SCSI cables, you must first remove any DIMMs in memory banks A and B (closest to the PCI cage).

6. Remove the ECI Management card by first disconnecting all power cables and any LAN or telecommunications cables.
7. Use a T-15 Torx driver to unscrew the two power connector mounting screws and remove the power connectors from the back of the system. See Figure 11.

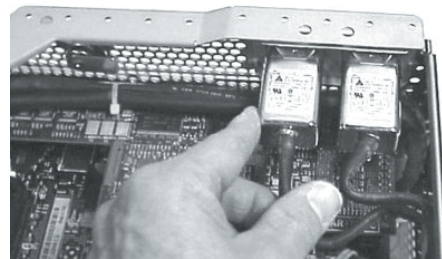
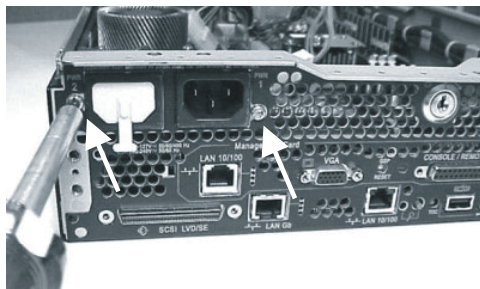


Figure 11: Removing the power connectors

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8. The next step is to disconnect the ECI Management card (orange) connector. Prior to disconnecting the Management card the two screws holding the ECI management card to the system motherboard must be removed. These screws are located on the far left and right sides of the ECI management card if viewed from the back of the server chassis. Additionally, two connector-screws for the 25-Pin Management Port located on the right end of ECI management card, holding the card against server chassis (back), must be removed in order to completely remove ECI Management card from server chassis.

Once the screws have been removed, disconnect the Management card, and then remove the Management card from the system by grasping it by its edges. Once removed, place the Management card on the anti-static bag that the HP Smart Array 5300 controller card came in to protect it from static electricity. See Figure 12.

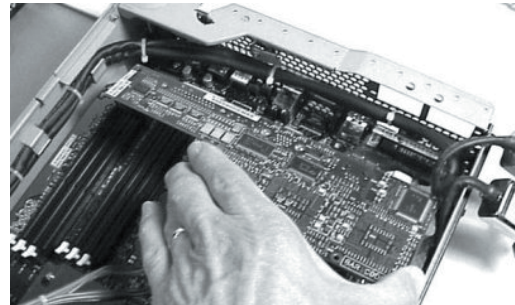
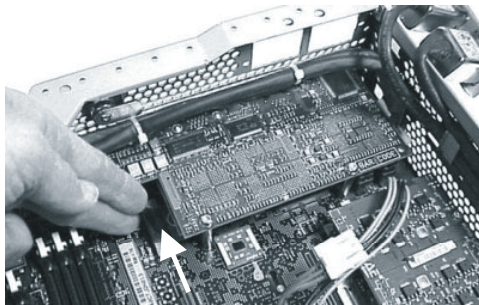


Figure 12: Disconnecting the management card connector and removing the card

9. Disconnect and remove any unused SCSI cables from the system board as shown in Figure 13.

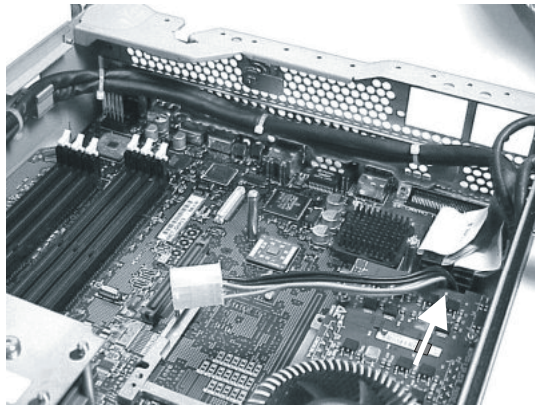


Figure 13: Disconnecting unused SCSI cables from the system board

Single Channel Setup

- For single-channel support, plug the end of the A7231-63024 single channel cable labeled Front PORT into PORT 2 of the HP Smart Array 5300 controller card (see Figure 14). The cable connectors are marked for clarity. Note that the excess cable goes between PCI slots 3 and 4 and part of the cable must be folded down (90 degrees). Be sure it lies flush against the HP Smart Array 5300 controller card to prevent it from obstructing the access to the other PCI slots, with the other part of the cable which is labeled Channel A (bottom) exiting the PCI cage flush against where the PCI board cover and cable channel will fit on the PCI cage (see Figure 16).

NOTE: Do not reinstall the PCI cage or plug the other end of the cable into the hard drive backplane yet. This will be described later.

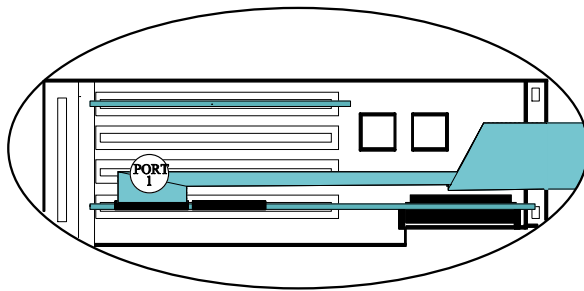


Figure 14: Single Channel RAID cabling from the HP Smart Array 5300 controller card (installed in the PCI cage)

Dual Channel Setup

- For dual channel support, plug the end of the A7231-63025 dual channel cable labeled Rear PORT and Front PORT into PORT 1 and PORT 2, respectively, of the HP Smart Array 5300 controller card (see Figure 15). The cable connectors are marked for clarity. Note that the excess cable goes between PCI slots 3 and 4 and part of the cable must be folded down (90 degrees) as shown in Figure 16. Make sure it lies flush against the HP Smart Array 5300 controller card to prevent it from obstructing access to other PCI slots, with the other part of the cable which is labeled Channel A (bottom) and Channel B (top) exiting the PCI cage flush against where the PCI board cover and cable channel will fit on the PCI cage (see Figure 16).

NOTE: Do not reinstall the PCI cage or plug the other end of the cable into the hard drive backplane yet. This will be described later.

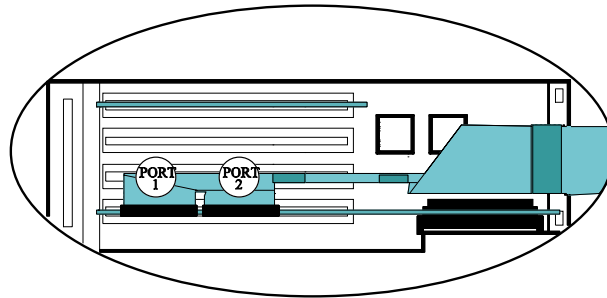


Figure 15: Dual Channel RAID cabling from the HP Smart Array 5300 controller card (installed in the PCI cage)

12. Replace the PCI cage board cover routing the RAID cable out of the cover's cable channel (see Figure 16). Note that the RAID cable should be folded down flush against the HP Smart Array 5300 controller card with the latter half of the cable bent in order to exit through the PCI board cover cable channel (see 1 in Figure 16).

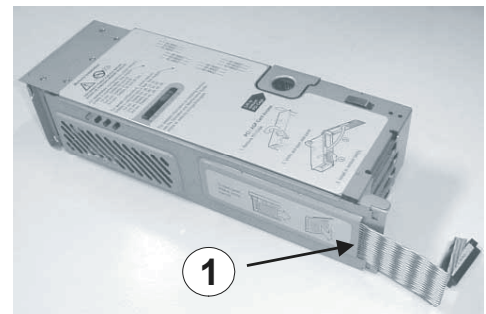
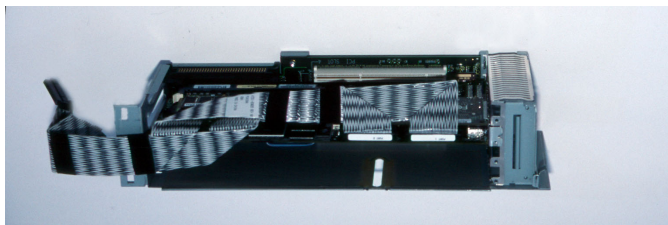


Figure 16: RAID cable routing through the PCI cage board cover

13. Place the PCI cage back into the system. Note that the RAID cable(s) must be flush against the server chassis as it exits the PCI cage cable channel (see 1 in Figure 17). It must then be routed around the chassis side of fan 3 to the hard drive backplane (see 2 in Figure 17) to avoid crimping.

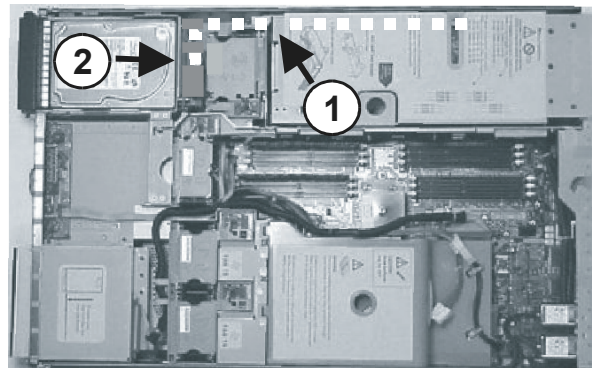


Figure 17: RAID cable routing

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14. Connect the free end(s) of the RAID cable from the HP Smart Array 5300 controller card to the backplane. The cable connectors are marked.
 15. Reinstall the management card and power supply connectors.
 16. Reinstall any removed DIMMs into the memory banks.
 17. Lower the fan power bridge.
 18. Reinstall fans 2 and 3.
 19. Close the server.

Configuring the Server for RAID

To complete the installation and set up RAID for your server's internal hot swap drives, follow the instructions in the documents listed below.

Where to Go for Additional Help

To complete the installation and set up RAID for your server's internal hot swap drives and to perform the following tasks, you will need to follow the instructions in the *HP Smart Array 6402 Controller User Guide*:

- Configure your HP Smart Array 6402 controller card in an HP Integrity server. Use HP Smart Array 6402 utilities and command line options from the EFI Shell. The Option ROM Configuration for Arrays (ORCA) Utility can only be accessed when the system is booting. Press the F8 key at boot time to start ORCA to configure your RAID array.
- Install operating system-specific HP Smart Array 6402 utilities and software that help you manage your RAID.
- Use operating system-specific HP Smart Array 6402 utilities and software that help you manage your RAID. The Array Configuration Utility (ACU) can run online with the Microsoft® Windows® OS.
- Configure the HP Smart Array 6402 for an external RAID storage system.